Vessel Sanitation Program

CDC/VSP Cruise Ship Norovirus Experience 2002/2003?

CDR Jaret Ames, Deputy Chief VSP

Mission

- Prevent the introduction, transmission, or spread of communicable diseases into the U.S.
- Assist cruise ship industry develop and implement comprehensive sanitation programs in order to minimize the risk for gastrointestinal diseases.

VSP History

1970-1975 **1975** **1980** **1987** **1988**

Routine sanitation inspections of all arriving vessels
Significant risk associated with cruise ships
WHO "Guide to Ship Sanitation"

ompliance
minimum
itation
e threat
esults
the

n on
n1986
d &
d" to
rogram of

User fees charged to support 100% of VSP budget

with
omponents:
nspections
ctions
nsultation
outbreaks
ation of

Cost for 2002 = $0.03/passenger/day

VSP Program Components

- Inspections

- Cruise vessels that:
  - Carry 13 or more passengers
  - International Itinerary
  - Call on U.S. Ports
- 2003
  - 150+ vessels
  - 8.5 million passengers

Queen Mary 2

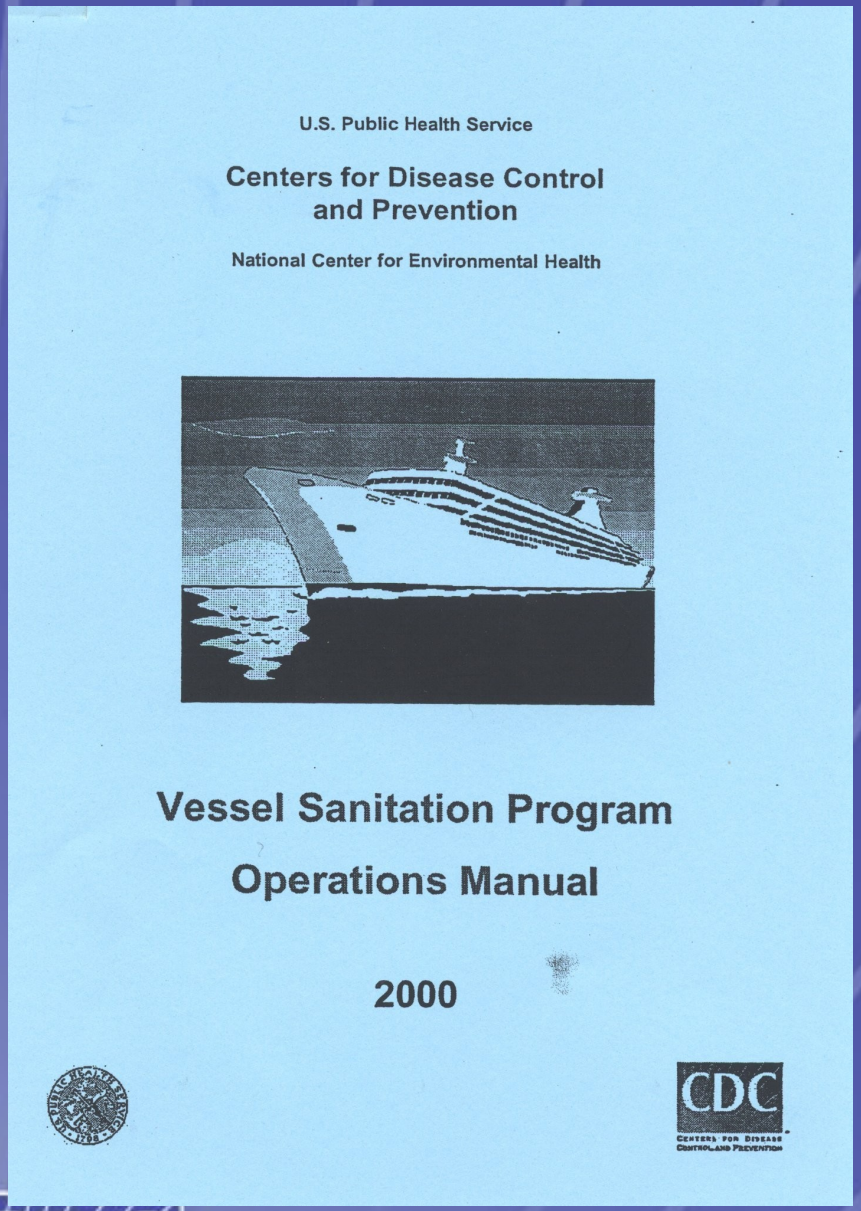
Length	350 m
GRT	151,400
Passengers	2,260
Crew	1,254

Arabella

Length	50m
Pax	49

CDC

SAFER • HEALTHIER • PEOPLE™



Based on:

- Previous VSP Ops Manual
- FDA 1999 Model Food Code
- WHO Guide to Ship Sanitation
- Extensive Reference Section

BAZZINI

1 10 '99

CDC

SAFER • HEALTHIER • PEOPLE™

Summary for the Week Ending January 5, 2001
Sanitation Inspections of International Cruise Ships

Name of Vessel Sailing from U.S. Ports	Date of Inspection	Score
Aegean I	12/09/99	52
Albatross	09/20/00	86
Amsterdam	10/30/00	93
Arcadia	11/30/00	96
Arkona	02/01/99	89
Astor	01/15/99	91
Asuka	06/22/00	94
Big Red Boat II	09/11/00	94
Big Red Boat III	09/09/00	92
Bolero	01/04/00	89
C. Columbus	09/04/00	96
Carnival Destiny	07/29/00	94
Carnival Triumph	08/19/00	97
Carnival Victory	09/28/00	97
Caronia	02/29/00	90
Celebration	06/18/00	92
Century	10/20/00	93
Clipper Adventurer	09/19/00	97
Club Med 2	04/06/00	77
Contessa 1	01/11/00	93
Costa Atlantica	11/19/00	98
Costa Romantica	04/05/00	90
Costa Victoria	04/16/00	89
Crown Dynasty	10/11/00	93
Crown Princess	08/27/00	94
Crystal Harmony	08/14/00	96
Crystal Symphony	01/20/00	100
Dawn Princess	12/09/00	96
Delphin	09/23/00	85
Discovery Sun	11/07/00	95
Disney Magic	05/15/00	96
Disney Wonder	07/23/00	95
Dolphin IV	06/30/00	88
Ecstasy	10/20/00	94
Elation	08/06/00	98
Emerald	03/20/00	90
Enchanted Capri	06/16/00	93
Enchanted Isle	04/29/00	89
Enchanted Sun	04/10/00	89
Enchantment of the Seas	06/11/00	94
Europa	11/10/00	96
Fantasy	10/29/00	93
Fascination	05/20/00	96
Flamenco	02/12/00	95
Fuji Maru	03/31/00	92
Galaxy	12/08/00	95
Grand Princess	05/14/00	97
Grande Caribe	09/19/00	93
Grande Mariner	09/17/00	87
Grandeur of the Seas	10/17/00	97
Hanseatic	09/15/00	97
Holiday	09/11/00	97
Horizon	06/03/00	92
Imagination	09/28/00	96
Inspiration	06/25/00	95
Island Adventure	08/30/00	90
Island Dawn (Discovery)	10/16/99	88
Jubilee	10/06/00	93
Le Levant	09/30/00	91
Legacy	05/21/00	79
Maasdam	10/18/00	96
Majesty of the Seas	08/18/00	90
Maxim Gorkiy	04/26/00	90
Melody	04/02/00	90
Mercury	10/15/00	98
Monarch of the Seas	08/21/00	91
Nantucket Clipper	10/14/00	88
Niagra Prince	08/26/00	88
Nieuw Amsterdam	08/13/00	89
Nippon Maru	06/12/00	99
Noordam	12/20/99	93
Nordic Empress	10/15/00	99
Norway	10/18/00	93
Norwegian Dream	11/26/00	93
Norwegian Majesty	11/17/00	92
Norwegian Sea	11/05/00	90
Norwegian Sky	10/19/00	97
Norwegian Wind	07/12/00	98
Ocean Breeze	04/20/00	95
Ocean Princess	09/14/00	100
Oceanic	08/28/00	91
Oriana	01/27/00	98
Orient Venus	03/30/00	69
Pacific Princess	09/10/00	94
Pacific Venus	04/28/00	87
Palm Beach Princess	05/16/00	86
Paradise	09/03/00	87
Queen Elizabeth 2	07/31/00	88
Radisson Diamond	04/03/00	94
Regal Empress	12/16/00	89
Regal Princess	08/11/00	93
Regal Voyager	06/26/00	88
Rembrandt	05/06/00	94
Rhapsody of the Seas	10/08/00	94
Rotterdam	12/06/99	91
Royal Princess	03/11/00	94
Ryndam	11/04/00	96
Scotia Prince	09/25/00	92
Sea Bird	09/19/00	96
Sea Lion	08/12/00	92
Sea Princess	07/13/00	96
Seabourn Goddess I	04/07/00	90
Seabourn Goddess II	12/05/99	94
Seabourn Legend	11/28/00	95
Seabourn Pride	10/16/00	95
Seabourn Sun	08/15/00	94
Sensation	07/16/00	92
Seven Seas Navigator	06/03/00	98
Silver Cloud	10/10/99	98
Silver Shadow	10/24/00	97
Silver Wind	09/22/00	96
Sky Princess	09/13/00	91
Sovereign of the Seas	07/16/00	94
Spirit of Columbia	09/16/00	95
Splendour of the Seas	09/24/00	90
Statendam	05/10/00	94
Stella Solaris	01/17/00	93
Sun Princess	08/10/00	93
Topaz	04/08/00	77
Tropicale	11/04/00	86
Universe Explorer	06/02/00	96
Veendam	10/05/00	86
Victoria	03/08/99	92
Viking Serenade	08/07/00	86
Vision of the Seas	06/02/00	95
Vistamar	01/29/00	33
Volendam	10/23/00	98
Voyager of the Sea	11/12/00	92
Westerdam	07/11/00	92
Wind Spirit	04/09/00	93
Yorktown Clipper	09/15/00	90
Zaandam	09/02/00	93
Zenith	09/09/00	96

This publication is now available via INTERNET, at http://www2.cdc.gov/nceh/vsp/vspmain.asp , or by the CDC fax-back service by dialing 888-232-6789 and requesting Document No. 510051.

Legend:

All passenger cruise ships arriving at U.S. ports are subject to unannounced inspection under the voluntary cooperative inspection program. The purpose of these inspections is to achieve levels of sanitation that will minimize the potential for gastrointestinal disease outbreaks on these ships. Such outbreaks are infrequent, but may be serious when they do occur. Ships are rated on the following items to determine if they meet CDC sanitation standards:

1. Water
2. Food preparation and holding
3. Potential contamination of food
4. General cleanliness, storage, and repair

In the past, a score of 86 or higher was reported as Satisfactory and a score of 85 and below was reported as Not Satisfactory. Ships unable to achieve a score of at least 86 on a routine periodic inspection will receive a reinspection within a reasonable time frame depending upon ship schedules and receipt of the "Statement of Corrective Action" from the ship's management.

A score of 86 or higher at the time of the inspection indicates that the ship is providing an accepted standard of sanitation. In general, the lower the score the lower the level of sanitation; however, a low score does not necessarily imply an imminent risk of an outbreak of gastrointestinal disease. CDC reserves the right to recommend that a ship not sail when circumstances so dictate (such as, but not restricted to, contamination of the potable water supply or inadequate treatment of the potable water supply).

A notation of "**Rev**" in the score column indicates the inspection results are under review at the request of the owner/operator.

(●) indicates inspections during the previous two weeks.

A copy of the most recent sanitation inspection report on an individual vessel may be obtained by writing to:

Chief, Vessel Sanitation Program
National Center for Environmental Health
4770 Buford Hwy., NE, Mailstop F-16
Atlanta, GA 30341-3724

SAFER • HEALTHIER • PEOPLE™

National Center for Environmental Health - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://www2.cdc.gov/nceh/vsp/vspmain.asp

Go Links

- Description of CDC's Vessel Sanitation Program
- Sanitation inspection scores
- Construction Guidelines Manual
- VSP Operations Manual 2000
- Training Seminars
- Variances
- Disease Surveillance and Outbreak Investigations
- Gastrointestinal Illness Log Forms
- Publications
- Inspection Pictures
- Directory of cruise ships
- Other News

- NCEH Home
- NCEH en Español
- About NCEH
- Programs
- Publications
- NCEH Topics

NCEH Search

Enter Keywords:

Search Clear

Toll-free telephone number for information and faxes on childhood lead poisoning, cruise ship inspection, cholesterol measurements, and list of publications: NCEH Health Line

1-888-232-6789

Sanitation Inspections of International Cruise Ships -- Database Search

Summary of Most Recent Inspection

Ships Inspected Past 2 Months | Ships with Not Satisfactory Scores (under 85) | Summary of Inspection Scores (Green Sheet)

Enter Search Criteria

	Ship Name	PAUL GAUGUIN QUEEN ELIZABETH 2 RADIANCE OF THE SEAS RADISSON DIAMOND
(AND)	**Inspection Date**	◉ Most Recent Date ○ All Dates ○ Date between [ ] and [ ] (mm/dd/yy)
(AND)	**Scores**	◉ All ○ 86 or higher -- Satisfactory Scores ○ 85 or lower -- **NOT** Satisfactory Scores
	Sort By	◉ Inspection Date (most recent first) ○ Ship Name (alphabetical) ○ Score (high - low) ○ Score (low - high)

Submit Reset

- Air Pollution and Respiratory Health
- Asthma
- Division of Laboratory Sciences
- Emergency and Environmental Health Services
- Environmental Hazards and Health Effects
- Global Health Office
- Health Studies
- Molds in the Environment
- Preventing Lead Poisoning in Young Children
- Vessel Sanitation - Sanitary Inspection of International Cruise Ships

NCEH Home | Programs | Publications | Contact Us | Privacy | About NCEH

CDC Home | CDC Search | Health Topics A-Z

This page last reviewed December 23, 2002

Vessel Sanitation Program
National Center for Environmental Health
Centers for Disease Control and Prevention (CDC)

Internet

Start | Inbox - Microsoft Outlook | NCEH-Advisory Presentat... | National Center for En... | 1:23 PM

CDC

SAFER • HEALTHIER • PEOPLE™

http://www2.cdc.gov/nceh/vsp/DisplayPDF.asp?intImageKey=377&button1=Acknowledge - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://www2.cdc.gov/nceh/vsp/DisplayPDF.asp?intImageKey=377&button1=Acknowledge

Go Links

200% Navigation

Bookmarks Thumbnails Comments Signatures

38	**SOUP STATION**	33	1	No

EXCESS WATER WAS NOTED ON THE DECK BETWEEN THE SCUPPER CHANNELS.

DRAINS CHECKED FOR BLOCKAGES. POOLED WATER TO BE REMOVED AS QUICKLY AS IT APPEARS.

39	**MAURETANIA POTWASH**	34	1	No

A LEAK WAS NOTED AT THE HOT WATER VALVE IN THE MIDDLE COMPARTMENT OF THE POTWASH SINK.

REPAIRED.

40	**MAURETANIA POTWASH**	26	3	No

GREASE WAS NOTED ON THE BOTTOMS OF TWO PANS. THE WASH WATER WAS COOL TO TOUCH.

STAFF REINSTRUCTED IN CLEANING PROCEDURES – CLOSER SUPERVISION ENFORCED.

41	**MAURETANIA GALLEY**	26	3	Yes

SLIGHT FOOD SOIL WAS NOTED ON THE FRYER COILS.

STAFF REINSTRUCTED IN CLEANING PROCEDURES – CLOSER SUPERVISION ENFORCED.

42	**MAURETANIA**	21	1	No

OVEN THERMOMETERS WERE NOTED IN TWO OF THE HOT HOLDING UNITS.

APPROPRIATE THERMOMETER WITH RELEVANT TEMPERATURE RANGE INSTALLED.

43	**MAURETANIA GALLEY**	20	2	No

SLIGHT CORROSION WAS NOTED ON THE OVEN RACKS IN OVEN CB003.

SOURCING REPLACEMENT RACKS.

44	**MAURETANIA GALLEY**	33	1	No

GREASE AND DUST WERE NOTED IN THE GAP ON THE UPPER PORTION OF THE HATCH BEHIND OVEN CB003.

4 of 7 8.5 x 11 in

Done Internet

Start Inbox - Microsoft Outlook NCEH-Advisory Presentat... http://www2.cdc.gov/... 1:28 PM

CDC

SAFER • HEALTHIER • PEOPLE™

VSP Program Components

- Inspections
- Surveillance & Outbreak Investigations

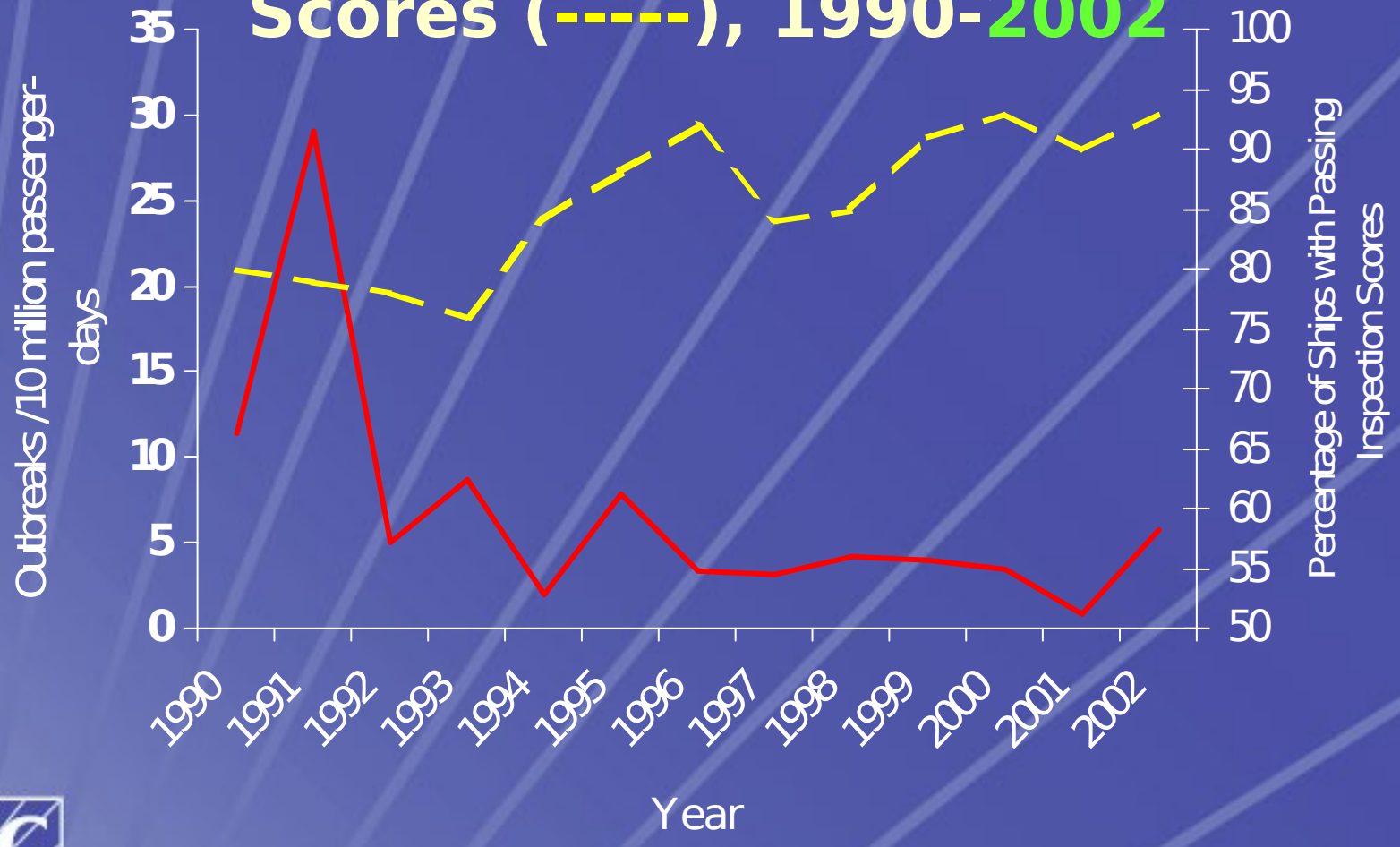
Surveillance

- Syndromic Surveillance for Gastrointestinal Illness
- GI Illness defined as:
  - Diarrhea (3+ loose stools in 24 hour period; or
  - Vomiting and 1 additional symptom including 1+ episode of loose stools in a 24 hour period, or abdominal cramps, or headache, or muscle aches, or fever.

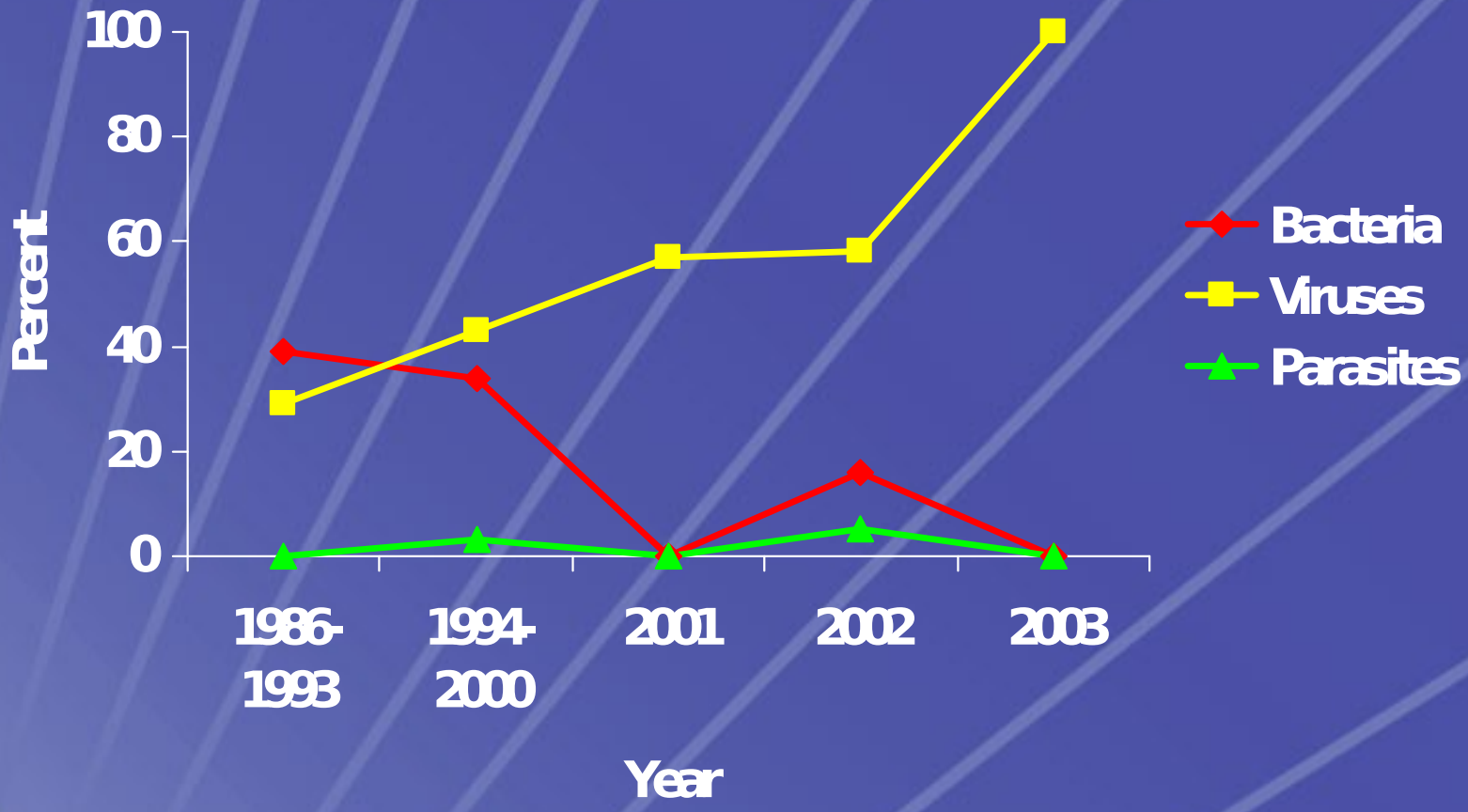
Surveillance

- Report 24 hours prior to arrival at a U.S. Port
- 4 hour update
- Special report when gastrointestinal illness reaches 2%
- Electronic Reporting
  - Updated to allow electronic reporting of SARS

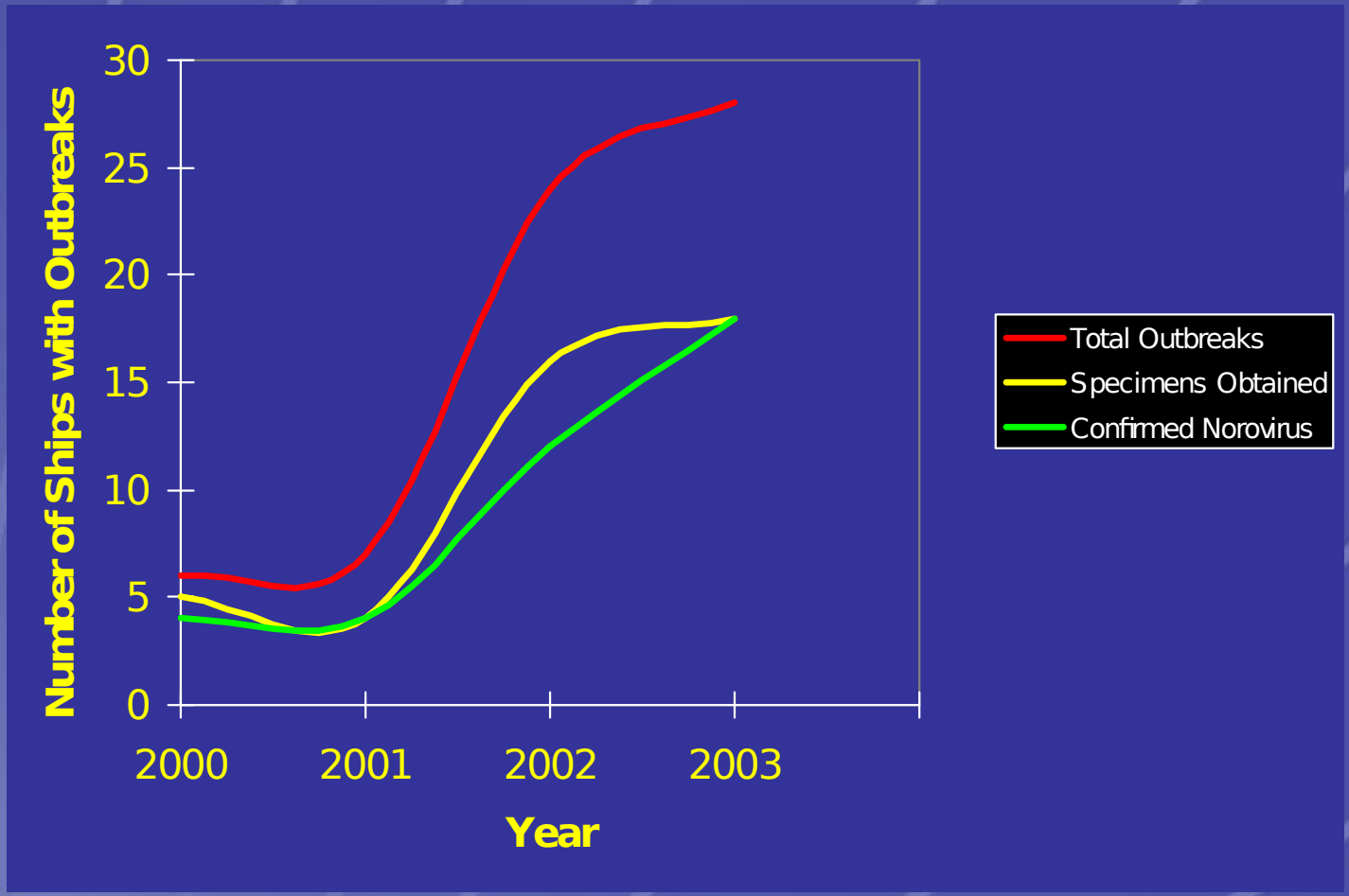
Outbreaks of Gastroenteritis Among Passengers Per 10 Million Passenger-days (---) And Percentage of Ships With >85 on Ship Sanitation Inspection Scores (-----), 1990-2002



Causal Pathogens Associated with Cruise Ship Outbreaks 1986 to present



Outbreaks of GI Illness confirmed on Cruise Ships, 2000-2003



Outbreaks of Norovirus - 2002-2003

- 2002
  - 23 outbreaks on 19 vessels.
  - Stool specimens collected on 15 outbreaks.
  - Norovirus identified in 11 of 15.
- 2003
  - 25 outbreaks on 23 vessels.
  - Stool specimens collected on 15 outbreaks.
  - Norovirus identified in all 15.

MMWR™

Norovirus Activity --- United States, 2002

- Most common cause of acute gastroenteritis in the United States
  - 23 Million cases/year
- 60-80% outbreaks occur on land
- Increase in number of outbreaks caused by non-foodborne transmission
- Predominant genetic strain

Have There Been More Cruise Ship Outbreaks?

- True increase in absolute outbreaks
- Increase in passenger-days and ships
- More sensitive immunoassays
- Expanded surveillance

Norovirus Response Plan

- Surveillance
- Identification & medical evaluation
- Isolation
- Containment
- Disinfection
- Investigation
- Information & education

Norovirus Response Plan

Disinfectants with known efficacy for Norovirus (Feline Calicivirus)

- Accelerated Hydrogen Peroxide (AHP)
  - Virox
- Chlorine
- Heat
- Parachlorometaxylenol (PCMX)
  - EcoTru
- Accelerated Potassium Peroxymonosulphate
  - Virkon
- Phenols
  - Mikro-Bac III

Norovirus Response Plan

Handwashing

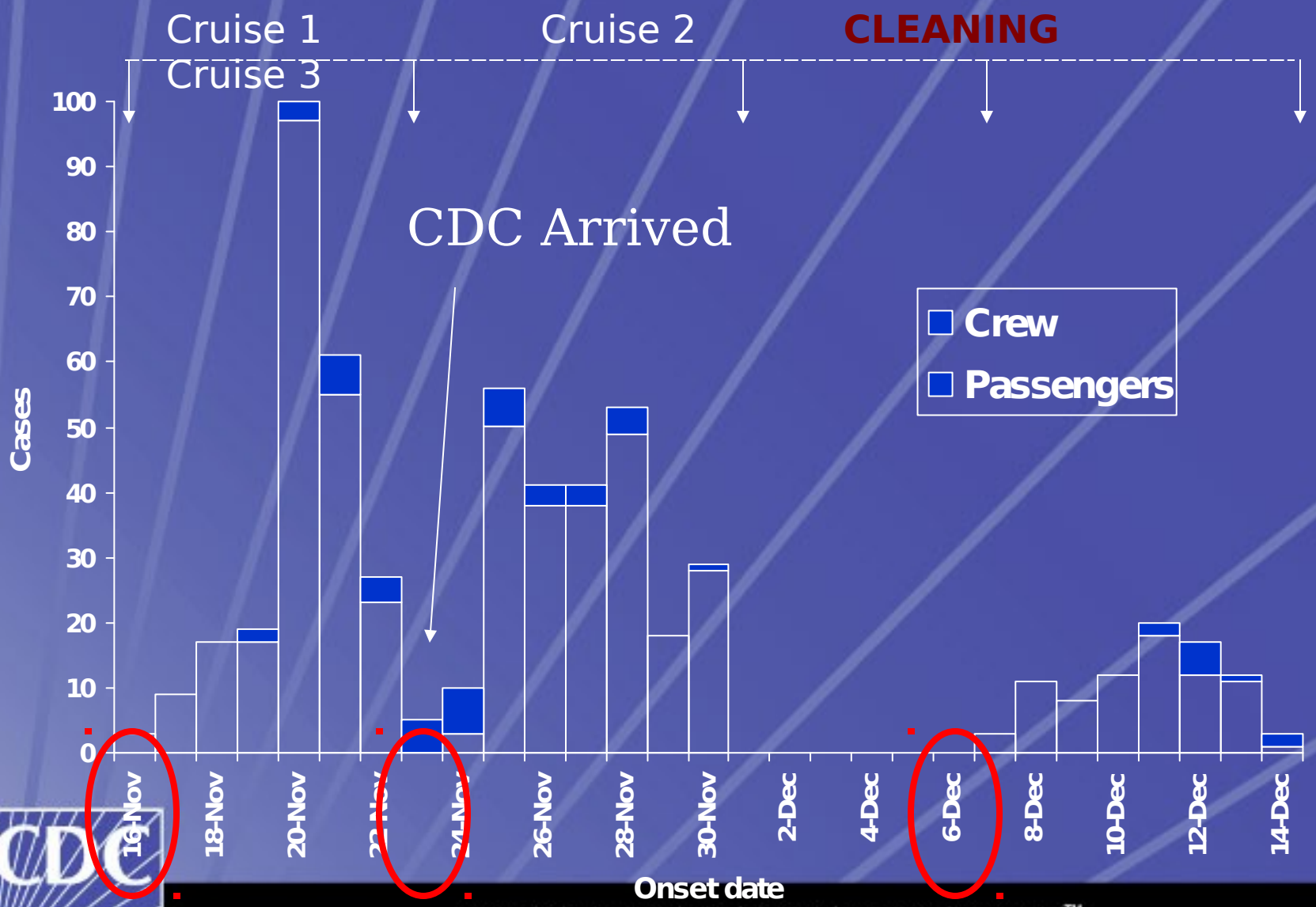
- Contaminated hands are probably the single most common source for the spread of Norovirus on cruise ships.
- Proper hand hygiene practiced by a majority of passenger and crew members could significantly decrease the incidence and extent of Norovirus outbreaks on cruise ships.

Norovirus Response Plan

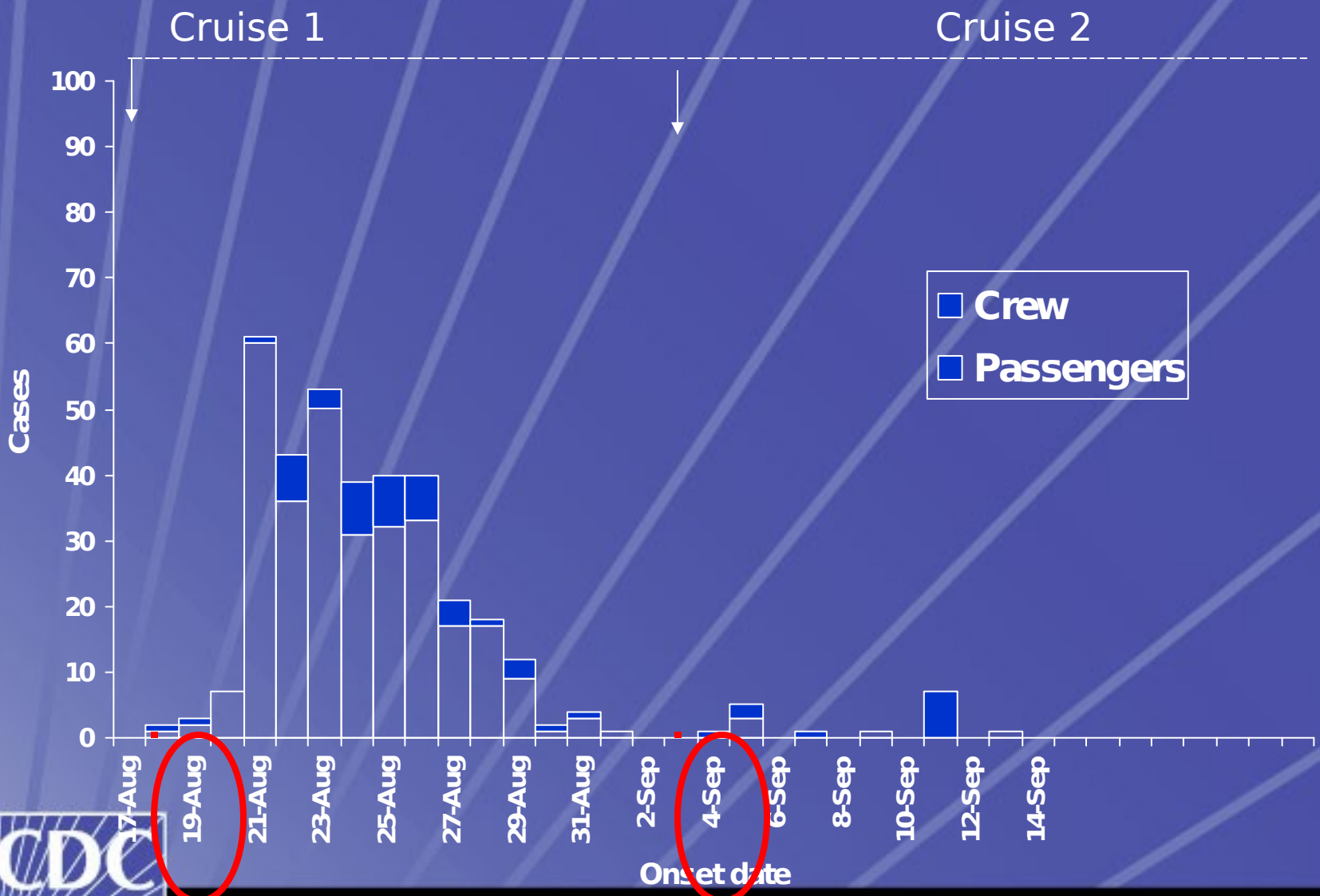
Handwashing

- Hand sanitizers with 60% - 80% ethanol showed a 1.5 log (95%) reduction of FCV on hands.
- Must have 20 second contact time
- Adjunct only and not a replacement for proper and frequent handwashing

Numbers of passengers and crew reporting AGE during four consecutive cruises on ship E, Nov16- Dec14, 2002 (n=575)



Number of passengers and crew reported Gastrointestinal Illness on Regal Princess for the Cruises August 18 - September 2 and September 4-14, 2003



VSP Program Components

- Inspections
- Surveillance & Outbreak Investigations
- Construction

AUGUST 2001

RECOMMENDED SHIPBUILDING CONSTRUCTION GUIDELINES FOR CRUISE VESSELS DESTINED TO CALL ON U. S. PORTS

VESSEL SANITATION PROGRAM
NATIONAL CENTER FOR ENVIRONMENTAL HEALTH
CENTERS FOR DISEASE CONTROL AND PREVENTION
UNITED STATES PUBLIC HEALTH SERVICE

AUGUST 2001

VSP – Consultation Plan Review

SEAS

Vessel Sanitation Program - Yard Inspection

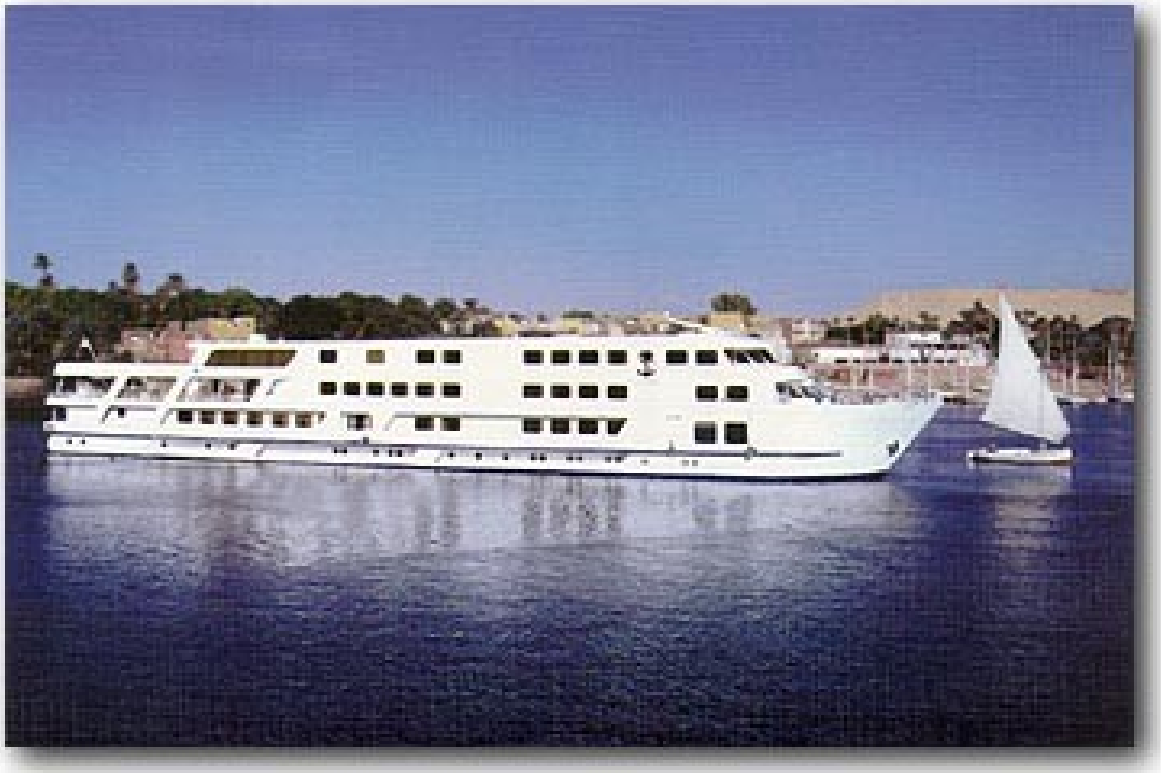
CDC

SAFER • HEALTHIER • PEOPLE™

VSP Program Components

- Inspections
- Surveillance & Outbreak Investigation
- Consultation on Construction
- Training & Consultation

VSP – International Consultation

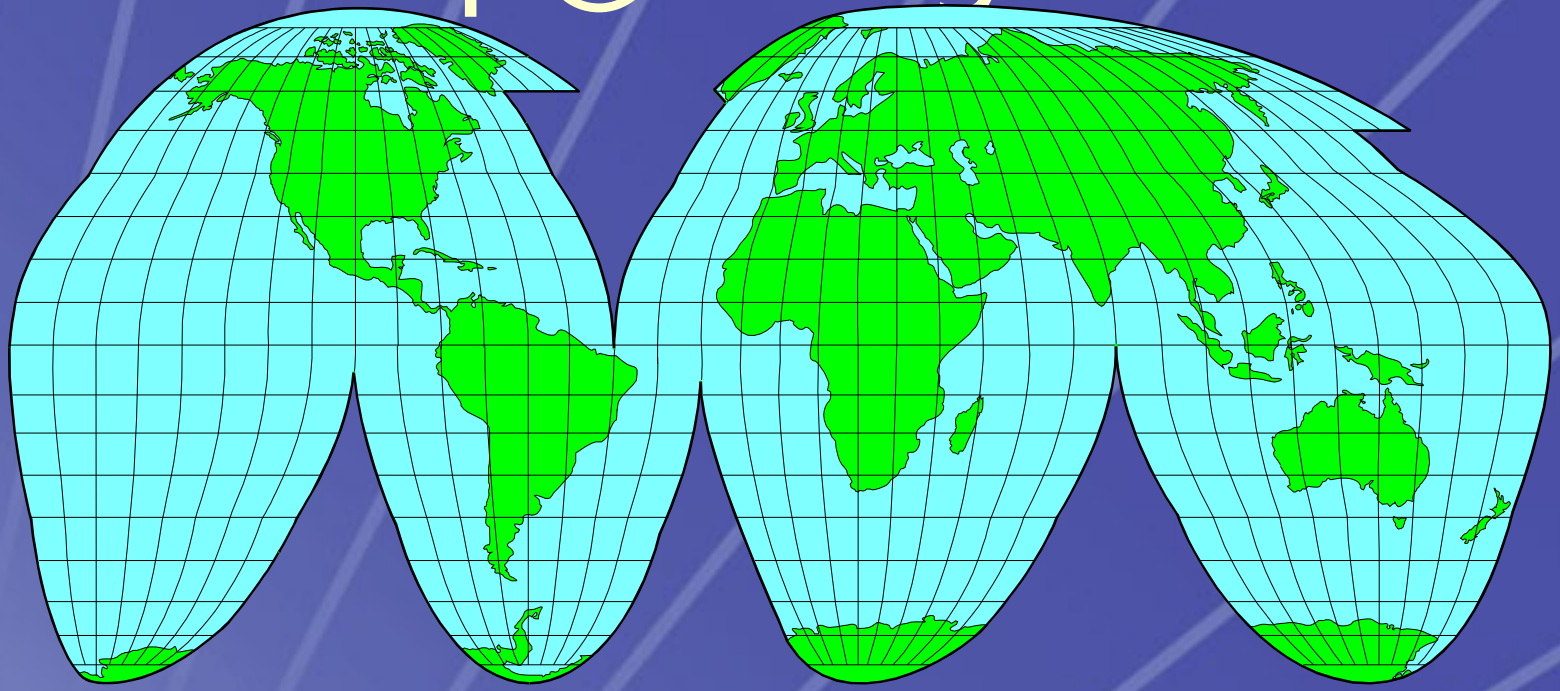


Egypt – Nile Cruises

- 10-12 Cruise Vessels – Floating Hotels
- Currently No Vessel Inspection Program
- ATHENS 2000 Mandate for USPHS inspection prior to arrival in Piraeus

www.cdc.gov/nceh/vsp

vsp@cdc.gov



MIKE LUCKOVICH

Mike Luckovich's cartoon appears Tuesday through Friday, and Sunday